

**Citation for the First Ross Prize
December 9, 2008**

The first paper to be awarded the newly established Stephen A. Ross Prize in Financial Economics is “Corporate Debt Value, Bond Covenants, and Optimal Capital Structure,” written by Hayne Leland, Arno Rayner Professor of Finance and Management at the Berkeley’s Haas School of Business. This paper was published in the *Journal of Finance* in 1994. In it Leland examines how various factors such as taxes and bankruptcy costs determine both the value of a firm’s debt securities and the amount of debt a firm should issue (its optimal debt to equity ratio).

Leland builds on the insights of Fischer Black, Robert Merton and Myron Scholes, who recognized that a firm’s debt and equity securities can be understood as contingent claims on the assets of the firm. This means that the same techniques that are used to price options and other derivative claims can be used to value the securities that make up a firm’s capital structure.

In the prize winning paper Leland develops an analytical framework which incorporates three key features of debt financing. First, debt creates a valuable tax shield for companies since interest payments are a deductible expense. This feature of the tax code tends to make debt an attractive form of financing. Second, bankruptcy carries with it “deadweight” costs. As the firm increases its use of debt, debt becomes less attractive since it becomes more likely that these costs will be incurred. Finally, in many circumstances equity holders have the ability to choose when to default on debt and they will do when it is optimal for them. The equity holders’ decision to default is best understood by observing that the claim that equity holders have on the firm’s assets is like a call option. To keep this option alive, the equity holders must pay the interest on the outstanding debt. However, when the value of the firm’s assets falls, the value of the equity holders’ option also falls. At some point the value of the option is just equal to the payments due debt holders. In this circumstance the firm will not be able to issue equity to maintain its obligations to the debt holders and the firm will default. This is the optimal point for equity holders to default and it clear that the value of debt will depend on where this point is.

The Leland paper presents a comprehensive analysis that shows how these factors and the riskiness of a firm’s assets affect both the value of debt and the optimal capital structure. Some of the results are surprising and involve subtleties created by the equity holders’ optimal default policies. For example, Leland shows that because of the optimal default considerations, the total value of a firm with risky (“junk”) debt may increase if that firm’s assets become riskier.

The prize winning paper has provided a foundation for much of the subsequent research in the pricing of debt and optimal capital structure, some of it carried out by Hayne Leland himself.